

reading a selected frequency component of the acoustic wave.

11. (Amended) A method for modifying the characteristics of an acoustic wave, comprising the steps of:

A 2 generating an acoustic wave in a medium;

varying a velocity of the acoustic wave; and

reading a selected frequency component of the acoustic wave.

17. (Amended) An apparatus for varying the characteristics of an acoustic wave, comprising:

a medium for acoustic wave propagation;

a transducer formed on the medium; and

a light source illuminating the medium,

wherein a selected frequency component of the acoustic wave is read from the transducer.

26. (Amended) A method for making an acoustic wave device, comprising the steps of:

A 4 providing a medium for acoustic wave propagation;

forming a transducer on the medium;

providing a first light source for illuminating the medium; and

providing a second light source for illuminating the medium.

28. (Amended) The method of Claim 26, wherein the first light source or the second light source is a laser diode.

A 5 29. (Amended) The method of Claim 26, wherein the first light source or the second light source is a light-emitting diode.

30. (Amended) The method of Claim 26, further comprising the step of providing means for varying an intensity of a light generated by the first light source and the second light source.

42. (Amended) A method for modifying the characteristics of an acoustic wave, comprising the steps of:

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providing a medium for acoustic wave propagation;
generating an acoustic wave;
propagating the acoustic wave using the medium;
inducing a charge grating in the medium during the propagation of the acoustic wave; and

reading a selected frequency component of the acoustic wave.

Please add the following claims:

52. (New) A method for modifying the characteristics of an acoustic wave, comprising:

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providing a medium for acoustic wave propagation;
generating an acoustic wave;
propagating the acoustic wave using the medium;
illuminating a first portion of the medium with a first illumination source operated in a first manner during the propagation of the acoustic wave; and
illuminating a second portion of the medium with a second illumination source operated in a second manner during the propagation of the acoustic wave.

53. (New) The method of Claim 52, wherein the medium is a piezoelectric substrate.

54. (New) The method of Claim 53, further comprising forming a transducer on the piezoelectric substrate.

55. (New) The method of Claim 54, wherein the acoustic wave is generated by the transducer.

56. (New) The method of Claim 52, wherein the medium is illuminated using a laser diode.

57. (New) The method of Claim 52, wherein the medium is illuminated using a light-emitting diode.

58. (New) The method of Claim 52, further comprising varying a first intensity of the first illumination source and a second intensity of the second illumination source.

59. (New) The method of Claim 58, wherein the first intensity and the second intensity are varied by a controller.

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60. (New) The method of Claim 58, wherein the first intensity and the second intensity are varied by a light modulator.

61. (New) The method of Claim 52, further comprising reading a selected frequency component of the acoustic wave.

62. (New) An apparatus for varying the characteristics of an acoustic wave, comprising:

a medium for acoustic wave propagation;
a transducer formed on the medium for generating an acoustic wave;
a first light source illuminating a first portion of the medium during a propagation of the acoustic wave; and
a second light source illuminating a second portion of the medium during a propagation of the acoustic wave

63. (New) The apparatus of Claim 62, wherein the medium is a piezoelectric substrate.

64. (New) The apparatus of Claim 62, wherein the first light source or the second light source is a laser diode.

65. (New) The apparatus of Claim 62 wherein the first light source or the second light source is a light-emitting diode.

66. (New) The apparatus of Claim 63, wherein an intensity of the first light source or the second light source is varied.

67. (New) The apparatus of Claim 66, wherein the intensity of the light is varied by a controller.

A 7 68. (New) The apparatus of Claim 66, wherein the intensity of the light is varied by a light modulator.

69. (New) The apparatus of Claim 62, wherein a selected frequency component of the acoustic wave is read from the transducer.